Glossary of Chemical Terms

CHEMICAL OR TERM	CHARACTERISTICS AND USES	POTENTIAL HAZARDS
acetone	Colorless, volatile liquid; sweetish odor; miscible with water, alcohol, ether, chloroform, and most oils. Used in preparation of chemicals or as a solvent.	Flammable, dangerous fire risk. Acts as narcotic in high concentrations. Moderately toxic by ingestion and inhalation.
acid	Large class of chemical substances whose water solutions can react with and dissolve certain metals to form salts and with bases or alkalies to form salts. Common inorganic acids are sulfuric, nitric, and phosphoric.	Highly irritating and corrosive to human tissue.
adhesive	Any substance (organic or inorganic, natural or synthetic) that is capable of bonding other substances together by surface attachment. Adhesives are used for metal/metal and glass/metal seals, miscellaneous packaging applications, and various repair and maintenance purposes.	Adhesives containing organic solvents are flammable.
aluminum nitrate	White crystals that are soluble in cold water and decompose in hot water. Soluble in alcohol and acetone. Used in nucleonics and the manufacture of incandescent filaments; serves as an anticorrosion agent.	Strong oxidizing agent that cannot be stored near combustible materials.
americium	A synthetic radioactive element (atomic number 95); member of the actinide series. Alpha and gamma emitter; forms compounds with oxygen, halides, lithium, etc. Metallic americium is silver-white, crystalline. Half-life of americium-241 is 458 years. Used in gamma radiography, radiochemical research, diagnosis, and in electronic devices.	Radioactive poison.
argon	A nonmetallic element (atomic number 18). Colorless, odorless, tasteless, monatomic gas not known to combine chemically with any element. Uses include inert-gas shield in arc welding, furnace brazing, plasma jet torches, electric and specialized light bulbs; titanium and zirconium refinishing; flushing molten metals to remove dissolved gases; in Geiger-counter tubes; lasers; and inert gas or atmosphere in miscible applications.	Noncombustible; an asphyxiant gas.
arsine	Colorless gas, soluble in water, slightly soluble in alcohol, alkalies. Used in organic synthesis and as an agent for solid-state electronic components.	Highly poisonous by inhalation.
asbestos	Impure magnesium silicate occurring in fibrous form. Non-combustible. Fireproof fabrics can be found in brake lining, gaskets, roofing compositions, electrical and heat insulation, paint filler, and chemical filters. Reinforcing agent in rubber and plastics.	Highly toxic by inhalation of dust particles. An active carcinogen.
base	Any of a large class of compounds that can react with (neutralize) acids to form salts. Includes hydroxides and oxides of metals. Common strong bases (alkalies) include sodium and potassium hydroxides, ammonium hydroxide, etc.	Caustic and corrosive to skin, eyes, and mucous membranes.

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beryllium	Metallic element (atomic number 4). A hard, brittle, gray-white metal; soluble in acids (except nitric) and alkalies. Resistant to oxidation at ordinary temperatures. It is the lightest structural metal known; can be fabricated by rolling, forging, and machining, Joining is chiefly by shrink-fitting; brazing and welding are difficult. Highly permeable to x-rays, Structural material in space technology; moderator and reflector of neutrons in nuclear reactors; source of neutrons; special windows for x-ray tubes; in gyroscopes, computer parts, inertial guidance systems; additive in solid-propellant rocket fuels; beryllium-copper alloys,	A carcinogen. Very high toxicity, especially by inhalation of dust.
beryllium hydride	White solid. Reacts with water, dilute acids, and methanol to liberate hydrogen. Liberates hydrogen rapidly when heated to 220 “C. Can be used in rocket fuels,	Fire risk when exposed to water, organic materials, and heat. Highly toxic,
carbon disulfide	Clear, colorless, or faintly yellow liquid with strong disagreeable odor. Soluble in alcohol, benzene, and ether; slightly soluble in water, Classed as an inorganic compound. Used as a solvent.	Highly flammable; dangerous fire and explosion risk; can be ignited by friction. A poison. Toxic by skin absorption.
carbon tetrachloride	A chlorinated hydrocarbon, Colorless liquid with sweetish distinctive odor, Miscible with alcohol, ether, chloroform, benzene, solvent naphtha, and most of the fixed and volatile oils; insoluble in water. Noncombustible. Uses include refrigerants and propellants, metal decreasing, chlorinating organic compounds, production of semiconductors.	Highly toxic by ingestion, inhalation, and skin absorption. Narcotic. A suspect carcinogen that decomposes to phosgene at high temperatures.
carbonyl sulfide	Colorless gas with typical sulfide odor. Soluble in water and alcohol. Used in the synthesis of organic compounds.	Flammable; highly toxic; acts as narcotic in high concentrations.
carcinogen	Any substance that causes the development of cancerous growths in living tissue,	Cancer risk
caustic	Usually refers to caustic soda (sodium hydroxide). Any strongly alkaline material that has a corrosive or irritating effect on living tissue.	Corrosive to tissue in presence of moisture; strong irritant to tissue (eyes, skin, mucous membranes),
chemical waste	Unusable byproduct from several chemical and metal-processing operations. Often contains toxic or polluting materials that become environmental threats when disposed of improperly.	Poses a wide variety of hazards,
chlorine	Nonmetallic halogen element (atomic number 17); a dense, greenish-yellow, diatomic gas. Noncombustible, but supports combustion; pungent irritating odor, Soluble in chlorides and alcohols. Extremely strong oxidizing agent. Slightly soluble in cold water. Used in manufacture of chemicals, water purification, flame-retardant compounds, and special batteries (with lithium or zinc),	Toxic as irritant and by inhalation. Moderate fire risk in contact with turpentine, ether, ammonia, hydrocarbons, hydrogen, powdered metals, and other reducing materials.

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combustible material	Any substance that will bum, regardless of its autoignition temperature or whether it is solid, liquid, or gas. As usually defined, refers to solids that are relatively difficult to ignite and that burn relatively slowly, and to liquids having a flash point higher than 100 'F.	**Fire hazard.**
corrosive material	Any solid, liquid, or gaseous substance that burns, irritates, or destructively attacks organic tissues, particularly the skin or, when ingested, the lungs and stomach. Includes hydrochloric acid, hydrofluoric acid, nitric acid, sodium hydroxide, and sulfuric acid.	Burns, irritates, or destructively attacks organic tissues.
cyanogen	Colorless gas, pungent penetrating odor, burns with a purple-tinged flame. Soluble in water, alcohol, and ether. Uses include organic synthesis, welding and cutting metals, fumigant, and rocket propellant.	**Flammable. Should be stored away from light and heat. A very toxic material.**
ethyl ether	Colorless, volatile, mobile liquid; hydroscopic; aromatic odor; burning and sweet taste. Soluble in alcohol, chloroform, benzene, solvent naphtha, and oils; slightly soluble in water. Used in organic synthesis, as an industrial solvent, in analytical chemistry, or as in anesthetic or extractant.	Extremely flammable, severe fire and explosion hazard when exposed to heat or flame. Forms explosive peroxides. Central-nervous-system depressant via inhalation and skin absorption.
explosive	**A chemical compound that detonates as a result of shock** or heat,	Detonation or deflagration.
flammable material	**Any** solid, liquid, vapor, or gas that will ignite easily and burn rapidly. Flammable solids are of several types: (1) dusts or fine powders; (2) solids that ignite spontaneously at low temperatures; (3) solids in which internal heat is built up by microbial or other degradation activity; (4) films, fibers, and fabrics of low-ignition-point materials. The most common flammable gases are hydrogen, carbon monoxide, acetylene, and other hydrocarbon gases,	Fire hazard. Flammable gases are extremely dangerous fire hazards and require precisely regulated storage conditions. Flammable liquids and solids are defined by a flash point (temperature at which a liquid or volatile solid gives off a vapor sufficient to form an ignitable mixture with the air near its surface),
Freon	Trademark (DuPont) for series of fluorocarbon products used in refrigeration and air-conditioning equipment, including blowing agents, fire-extinguishing agents, and cleaning fluids and solvents. Clear, water-white liquids. Vapors have a mild, somewhat ethereal odor and are not irritating; essentially stable and inert.	**Environmental hazard. Non-flammable, nonexplosive, and noncorrosive.**

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fuel	**Any substance involving energy** in a controlled chemical reaction, The most common type of chemical reaction is combustion, the type of oxidation occurring with petroleum products, natural gas, coal, and wood. More rapid oxidation takes place in rocket fuels (hydrogen, hydrogen peroxide, hydrazine) and approaches the rate of an explosion.	Fire, explosion,
gas	A state of matter characterized by very low density and viscosity (relative to liquids and solids); comparatively great expansion and contraction with changes in pressure and temperature; ability to diffuse readily into other gases; ability to occupy the whole of any container with almost complete uniformity. Gases may be either elemental (argon) or compounds (carbon dioxide); elemental gases may be monatomic (helium), diatomic (chlorine), or triatomic (ozone),	Gases are readily inhaled and are available for absorption through exposed skin.
hazardous material	Any material or substance that, in normal use, can be damaging to human health and well-being, Such materials cover a broad range of types, which may be classified as follows: (1) poisons or toxic agents that are in any way harmful, ranging from poisons to skin irritants and allergens; (2) corrosive chemicals that destroy or otherwise damage the skin and mucous membranes on external contact or inhalation; (3) flammable materials, including (a) organic solvents, (b) finely divided metals or powders, (c) some classes of fibers, textiles, or plastics, and (d) chemicals that either evolve or absorb oxygen during storage, thus constituting a fire risk in contact with organic materials; (4) explosives and strong oxidizing agents; (5) materials in which dangerous heat buildup occurs on storage, either by oxidation or microbiological action; and (6) radioactive chemicals that emit ionizing radiation.	Wide range of hazards as noted under Characteristics and Uses.
hazardous waste	See chemical waste, radioactive waste,	Various hazards depending on substances involved.
heavy metal	**A** metal of atomic weight greater than sodium (e.g., aluminum, lead, cobalt).	Most heavy metals are toxic.
hexone	See methyl isobutyl ketone	Flammable; dangerous fire risk. Avoid ingestion and inhalation. Can be absorbed by skin.
hydrocarbon	An organic compound consisting exclusively of carbon and hydrogen, Derived principally from petroleum, coal tar, and vegetable sources.	Most are flammable/explosive. Some are carcinogenic or toxic.

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hydrochloric acid	Hydrogen chloride in aqueous solution; colorless or slightly yellow, fuming, pungent liquid. Hydrochloric acid is a strong, highly corrosive acid. Soluble in water, alcohol, and benzene. Noncombustible. Uses include acidizing (activation) of petroleum wells, boiler scale removal, chemical intermediate, ore reduction, pickling and metal cleaning, industrial acidizing, general cleaning, alcohol denaturant, and laboratory reagent.	Highly toxic by ingestion and inhalation; strong irritant to eyes and skin.
hydrofluoric acid	Hydrogen fluoride in aqueous solution, Colorless, fuming, mobile liquid; will attack glass and any silicon-containing material. Used in aluminum production, fluorocarbons, pickling stainless steel, etching glass, acidizing oil wells, fluorides, processing uranium.	Toxic by ingestion and inhalation; highly corrosive to skin and mucous membranes,
hydrogen	Nonmetallic element (atomic number 1). A diatomic gas; very slightly soluble in water, alcohol, and ether. Noncorrosive. Uses include chemical production, reducing atmosphere to prevent oxidation, oxyhydrogen flame for high temperatures, atomic-hydrogen welding, instrument-carrying balloons, production of high-purity metals, cryogenic research.	Highly flammable and explosive. Dangerous when exposed to heat or flame. Classed as an asphyxiant.
hydrogen chloride	Colorless, fuming gas, with a suffocating odor, very soluble in water, soluble in alcohol and ether. Used in hydrochlorination, polymerization, isomerization, alkylation, and nitration reactions.	Nonflammable. Toxic by inhalation, strong irritant to eyes and skin.
hydrogen fluoride	Colorless, fuming gas or liquid; very soluble in water. Uses include catalyst in alkylation, isomerization, condensation, dehydration, and polymerization reactions; fluoridating agent in organic and inorganic reactions; production of fluorine and aluminum fluoride; additive in liquid rocket propellants; refining of uranium.	Nonflammable. Toxic by ingestion and inhalation, strong irritant to eyes, skin, and mucous membranes,
inorganic	Any chemical compound that does not contain the element carbon, with the exception of the oxides of carbon: compounds containing a carbonate group such as calcium carbonate, carbon disulfide, phosgene, carbonyl sulfide, and metallic carbonyl.	Inorganic compounds range from those that are almost wholly inert (sand, clay, limestone) to highly active and corrosive materials (hydrofluoric acid).
isobutane	A liquefied petroleum gas. Colorless gas with slight odor; stable, does not react with water has no corrosive action on metals. Soluble in water, slightly soluble in alcohol, and soluble in ether. Uses include organic synthesis, refrigerant, fuel, aerosol propellant, and instrument calibration fluid.	Highly flammable. Dangerous fire and explosion risk.

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lead	Metallic element (atomic number 82), Heavy, ductile, soft, gray solid. Soluble in dilute nitric acid; insoluble in water, but dissolves slowly in water containing a weak acid; resists corrosion; relatively impenetrable to radiation. Poor electrical conductor; good sound and vibration absorber. Noncombustible, Used in storage batteries, process equipment, radiation shielding, cable covering, sheet and pipe, solder and fusible alloys, type metal, vibration damping in heavy construction, and foil.	Toxic by ingestion or inhalation of dust or fumes A cumulative poison.
lithium	Metallic element (atomic number 3). It is the lightest and least reactive of the alkali metals and the lightest solid element. Very soft silvery metal. Reacts exothermally with nitrogen in moist air at high temperatures. High electrical conductivity. Soluble in liquid ammonia, Used in production of tritium, scavenger and degasifier for stainless and mild steels in molten state, modular iron, soaps and greases; used as deoxidizer in copper and copper alloys. Catalyst and heat-transfer liquid. Component in storage batteries (with sulfur, selenium, tellurium, and chlorine), rocket propellants, silver solders, and nuclear reactor coolant.	Ignites in air near its melting point (179 'C). Dangerous fire and explosion risk when exposed to water, acids, or oxidizing agents. Lithium in solution is toxic to the central nervous system.
lithium beryllium hydride	White crystalline mixed salt. Used for energy and nuclear studies.	Fire risk when exposed to water, organic materials, and heat. Highly toxic.
lithium carbonate	White powder; slightly soluble in water and insoluble in alcohol; soluble in dilute acid. Uses include ceramics and porcelain glazes; pharmaceuticals; catalyst; other lithium compounds; coating of arc-welding electrodes; nucleonics; luminescent paints, varnishes, and dyes; glass ceramics; aluminum production.	Strong irritant in water solution.
lithium chloride	White deliquescent crystals; very soluble in water, alcohols, ether, pyridine, and nitrobenzene. One of the most hydroscopic salts known, Uses include air conditioning, welding and soldering flux, dry batteries, heat-exchange media, salt baths, desiccant, production of lithium metals.	Low toxicity; should not be ingested.
lithium hydride	White, translucent, crystalline mass or powder. Decomposed by water, forming hydrogen and lithium hydroxide; insoluble in benzene and toluene; soluble in ether. Uses include desiccant, source of hydrogen, condensing agent in organic synthesis, preparation of lithium amide and double hydrides, nuclear shielding material,	Flammable, dangerous fire risk; ignites spontaneously in moist air. Toxic.
lithium hydroxide	Colorless crystals that are slightly soluble in alcohol; soluble in water; absorbs carbon dioxide and water from air, Uses include storage battery electrolyte, lubricating greases, and ceramics,	Strong irritant in water solutions.

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lubricating oil	A selected fraction of refined mineral oil used for lubrication of moving surfaces, usually metallic, ranging from small precision machinery (watches) to heavy equipment. Consistency ranges from thin liquids to grease-like substances. In contrast to lubricating greases, lubricating oils do not contain solids or fibrous materials.	Flammable/explosive in air at high temperatures.
mercury	Metallic element (atomic number 80). Silvery, extremely heavy liquid. Insoluble in hydrochloric acid; soluble in sulfuric acid upon boiling; readily soluble in nitric acid. Insoluble in water, alcohol, and ether. Uses include amalgams, catalysts, electrical apparatus, instruments (thermometers, barometers, etc.), mildew-proofing preparations, mercury vapor lamps, extractive metallurgy, arc lamps, coolant, and neutron absorber in nuclear power plants.	Metallic mercury is highly toxic by skin absorption and inhalation of fumes or vapors; absorbed by respiratory and intestinal tract. All inorganic compounds of mercury are highly toxic by ingestion, inhalation, and skin absorption. Most organic compounds of mercury are highly toxic. Spillage may be a toxic hazard because of droplet proliferation. Cleanup requires special care.
metal	An element that forms positive ions when its compounds are in solution; metallic oxides from hydroxides rather than acids with water. About 75%. of the elements are metals. Most are crystalline solids with metallic luster, conductors of electricity, and have rather high chemical reactivity; many are hard and strong. Most readily form solutions (alloys) with other metals. Geologically, metals usually occur in the form of compounds that must be physically or chemically processed to yield the pure metal.	Includes carcinogens (e.g., beryllium), toxics (e.g., heavy metals), and flammables (e.g., alkali metals).
methane	Colorless, odorless, tasteless gas; lighter than air; practically inert toward sulfuric acid, nitric acid, alkalies, and salts; reacts with chlorine and bromine in light (explosive in direct sunlight). Soluble in alcohol and ether; slightly soluble in water. Used in the synthesis of chemicals; used as a fuel in the form of natural gas.	Severe fire explosion hazard; forms explosive mixtures with air. Methane is an asphyxiant gas.
methyl isobutyl ketone (hexone)	Colorless, stable liquid; pleasant odor. Slightly soluble in water; miscible with most organic solvents. Uses include solvent for paints, varnishes, nitrocellulose lacquers; manufacture of methyl amyl alcohol; extraction processes, including extraction of uranium from fission products; organic synthesis; denaturant for alcohol.	Flammable; dangerous fire risk. Avoid ingestion and inhalation. Can be absorbed by skin.
nitric acid	Transparent, colorless or yellowish, fuming, suffocating, hydroscopic, corrosive liquid. Will attack almost all metals The yellow color is due to release of nitrogen dioxide on exposure to light. Strong oxidizing agent. Miscible with water; decomposes in alcohol. Uses include manufacture of ammonium nitrate for explosives, organic synthesis (dyes, drugs, explosives, cellulose nitrate, nitrate salts), metallurgy, photoengraving, etching steel, ore flotation, reagent, reprocessing spent nuclear fuel.	Dangerous fire risk in contact with organic materials. Highly toxic by inhalation. Corrosive to skin and mucous membranes.

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nitric oxide	Colorless gas (readily reacts with oxygen at room temperature to form nitrogen dioxide, a reddish-brown gas), slightly soluble in water. Used as an intermediate in production of chemicals.	Supports combustion. Toxic by inhalation, strong irritant to skin and mucous membranes.
nitrogen	Gaseous element (atomic number 7). Colorless, odorless, tasteless, diatomic gas constituting approximately 800/0 of the air; colorless liquid, chemically unreactive; slightly soluble in water; slightly soluble in alcohol. Used in the production of chemicals; manufacture of explosives; inert gas for purging, blanketing, and electronic industries; pressurizing liquid propellants; cryogenic preservation; and source of pressure in oil wells.	Noncombustible, an asphyxiant gas.
oil	Allied to a wide range of substances that are chemically different. Oils derived from animals or from plant seeds or nuts are chemically identical with fats. Petroleum (rock oil) is a hydrocarbon mixture comprising hundreds of chemical compounds. Petroleum-derived oils are used as lubricants (e.g., engine oil, machine oil, cutting oil).	Petroleum and petroleum-derived oils are flammable explosive in air at higher temperatures.
organic compound	Any substance that contains the element carbon, except carbon oxides and various carbonates. Some 700,000 organic substances have been identified.	Organic compounds are typically combustible or flammable, Variety of hazards to living tissue depending on substances involved.
oxidizing material	Any compound that spontaneously evolves oxygen either at room temperature or under slight heating. Includes such chemicals as peroxides, chlorates, perchlorates, nitrates, and permanganates.	Vigorous reactions at ambient temperatures when stored near or in contact with reducing materials such as cellulosic and other organic compounds. Storage areas should be well ventilated and kept as cool as possible.
paint	A uniformly dispersed mixture having a viscosity ranging from a thin liquid to a semisolid paste and consisting of a drying oil, synthetic resin, or other film-forming component, called the binder; a solvent or thinner; and an organic or inorganic pigment, Paints are used to protect a surface from corrosion, oxidation, or other type of deterioration, and to provide decorative effects.	Flammable, dangerous fire risk (except for water-based paints). Toxic if vapors are inhaled over a long period.
pH	pH is a value taken to represent the acidity or alkalinity of an aqueous solution. Pure water is the standard used in arriving at this value and has a pH of 7 (representing neutrality) on a scale of O to 14. As values decrease below 7, they represent increasing acidity, and as values increase above 7, they represent increasing alkalinity.	Chemicals/compounds with pH values on extremes of scale are highly reactive/ corrosive.

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phosgene	Liquid or easily liquefied gas; colorless of light yellow; odor varies from strong and stifling when concentrated to hay-like in dilute form; slightly soluble in water and slowly hydrolyzed by it; soluble in benzene and toluene. Used in organic synthesis, pesticides, and herbicides.	Very toxic via inhalation, strong irritant to eyes.
phosphine	Colorless gas, disagreeable, garlic-like odor. Soluble in alcohol, ether, and cuprous chloride solution; slightly soluble in cold water; insoluble in hot water. Uses include organic preparations, phosphonium halides, doping agent for n-type semiconductors, polymerization initiator, condensation catalyst.	Spontaneously flammable. Toxic by inhalation, strong irritant.
plutonium	Synthetic radioactive metallic element (atomic number 94). Plutonium is readily fissionable with both slow and fast neutrons and can be used for either nuclear weapons or electric power production.	The most radiotoxic of the elements and one of the most toxic substances known. Dangerous ionizing radiation persists indefinitely. A powerful carcinogen. Must be handled by remote control and with adequate shielding.
poison	Any substance that is harmful to living tissues when applied in relatively small doses. Effective dosage depends on (1) quantity or concentration, (2) duration of exposure, (3) particle size or physical state of the substance, (4) affinity for living tissue, (5) volubility in tissue fluids, and (6) sensitivity of the tissues or organs.	Poisons can be dangerous to life or strongly irritating. Hazardous either by contact with the body (skin absorption) or by ingestion.
polychlorinated biphenyl **(PCB)**	One of several aromatic compounds containing two benzene nuclei with two or more substituent chlorine atoms. Colorless liquid. Chief use is in heat-exchange and insulating fluids in closed systems.	Highly toxic. Persistent ecological hazard. (Because of persistence, toxicity, and ecological damage via water pollution, the manufacture of PCBS was discontinued in the United States in 1976.)
potassium bichromate	Bright, yellowish-red, transparent crystals; bitter, metallic taste. Soluble in water; insoluble in alcohol. Used as oxidizing agent (chemicals, dyes, intermediates) and analytical reagent, Also used for brass pickling compositions, electroplating, explosives, pyrotechnics, safety matches, textiles, dyeing and printing, glass, chrome glues and adhesives, process engraving and lithography, alloys, ceramic products, depolarizer in dry cell batteries.	Toxic by ingestion and inhalation. Dangerous fire risk in contact with organic materials. Strong oxidizing agent.
propylene	Colorless gas; soluble in alcohol and ether; slightly soluble in water. Used in chemical synthesis.	Highly flammable. Dangerous fire risk. An asphyxiant gas.
pyrophoric	Any liquid or solid that will ignite in air at about 130 F. Sodium and lithium hydride are spontaneously flammable in moist air because they react exothermicaily with water. Must be stored in an atmosphere of inert gas or under kerosene.	Dangerous fire risk near combustible materials.

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radioactive waste	Waste containing radioisotopes and spent nuclear reactor fuel. Such wastes may remain radioactive for thousands of years and can constitute a long-term hazard. Safe disposal techniques are being studied intensively.	Radiation hazard.
sodium hydroxide (caustic soda)	White deliquescent solid; occurs chiefly in form of beads or pellets, or as 50% and 73% aqueous solutions. Absorbs water and carbon dioxide from the air. Soluble in water, alcohol, and glycerol. Uses include chemical manufacturing, regenerating ion exchange resins, organic fusions, laboratory reagent, etching, and electroplating.	Corrosive to tissue in presence of moisture. Strong irritant to tissue (eyes, skin, mucous membranes).
sodium hypochlorite	Strong oxidizing agent, usually stored and used in solution; disagreeable, sweetish odor and pale greenish color. Soluble in cold water; decomposed by hot water. Uses include water purification, intermediate, organic chemicals, medicine, fungicides, swimming pools, household bleach, laundering, and reagent.	Fire risk in contact with organic materials. Toxic by ingestion; strong irritant to tissue.
sodium-potassium alloy (NaK)	Soft, silvery solid or liquid; must be kept away from air and moisture. The liquid forms come under the class name potassium or sodium; metallic liquid alloy, Uses include heat exchange fluid, electric conductor, organic synthesis, and catalysis. Legal label name for NaK.	Ignites in air; explodes in presence of moisture, oxygen, halogens, and acids. Store under kerosene.
solvent	A substance capable of dissolving another substance (solute) to form a uniformly dispersed mixture (solution). Water is the most common of all solvents. Aromatic hydrocarbons have higher solvent power than aliphatics (alcohols). Other organic solvent groups are esters, ethers, ketones, amines, and nitrated and chlorinated hydrocarbons. Uses include coatings (paints, varnishes, and lacquers), industrial cleaners, printing inks, extractive processes, and pharmaceuticals.	Many solvents are flammable and toxic to varying degrees. Contribute to air pollution and fire hazards.
sulfur	Nonmetallic element (atomic number 16), Insoluble in water; slightly soluble in alcohol and ether; soluble in carbon disulfide, carbon tetrachloride, and benzene, Used in production of chemicals, explosives, cement sealant, and binder and asphalt extender in road paving.	Combustible. Fire and explosion risk in finely divided form.
sulfur dioxide	Colorless gas or liquid with sharp, pungent odor. Soluble in water, alcohol, and ether. An outstanding oxidizing and reducing agent. Noncombustible. Uses include chemicals (sulfuric acid, sulfites, hydrosulfites of potassium and sodium, thiosulfates, alum from shale, and recovery of volatile substances), ore and metal refining, intermediates, solvent extraction of lubricating oils, disinfecting, reducing agent, and antioxidant.	Toxic by inhalation. Strong irritant to eyes and mucous membranes, especially under pressure. Dangerous air contaminant and constituent of smog.

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sulfuric acid	Strongly corrosive, dense, oily liquid; colorless to dark brown depending on purity. Miscible with water. Very reactive, dissolves most metals; concentrated acid oxidizes, dehydrates, or sulfonates most organic compounds, often causes charring, Uses include chemicals, dyes and pigments, etchant, alkylation catalyst, electroplating baths, industrial explosives, laboratory reagent, and nonferrous metallurgy,	Highly toxic. Strong irritant to tissue.
thorium	Metallic element (atomic number 90); a member of the actinide series. Soft metal with bright silvery luster when freshly cut; similar to lead in hardness when pure. Can be cold-rolled, extruded, or drawn and welded. Soluble in acids; insoluble in alkalies and water. Some alloys may ignite spontaneously; not flammable in massive form. Uses include nuclear fuel, sun lamps, photoelectric cells, target in x-ray tubes, and alloys.	Flammable and explosive in powder form. Dusts of thorium have very low ignition points and may ignite at room temperature. Radioactive decay isotopes are dangerous when ingested,
toxicity	The ability of a substance to cause damage to living tissue; impairment of the central nervous system; severe illness or (in extreme cases) death when ingested, inhaled, or absorbed by the skin. Amounts required to produce these results vary widely with the nature of the substances and the time of exposure.	The toxicity hazard of a material depends on its physical state and on its volubility in water and acids. Some metals that are harmless in solid or bulk form are quite toxic as fumes, powder, or dust.
toxic substances	Chemicals that are generally regarded as having toxic properties by either ingestion, inhalation, or absorption via the skin. Considerable variation in the degree of toxicity among these substances, which include individual chemicals such as asbestos (carcinogen); carbon monoxide, chlorine, hydrogen peroxide, hydrogen sulfide, methanol, sulfur dioxide; and groups of chemicals such as aldehydes, alkaloids, arsenic, beryllium, chlorinated hydrocarbons, chromium (hexavalent carcinogenic compounds), corrosive materials, cyanides, fluorine compounds, lead compounds, mercury, radioactive substances, selenium, and thallium.	Cause damage to living tissue (see toxicity.)
tributyl phosphate	Stable, colorless, odorless liquid. Miscible with most solvents and diluents. Soluble in water. Uses include heat-exchange; solvent extraction of metal ions from solution of reactor products; solvent for nitrocellulose, cellulose acetate; plasticizer; pigment-grinding assistant; antifoam agent; dielectric.	Combustible. Toxic by ingestion and inhalation. Irritant to skin.

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uranium	Metallic element (atomic number 92); a member of the actinide series. Dense, silvery solid; strongly electropositive; ductile and malleable; poor conductor of electricity. Forms solid solutions (for nuclear reactors) with molybdenum, niobium, titanium, and zirconium. Reacts with nearly all nonmetals. Attacked by water, acids and peroxides; inert toward alkalies. Green tetravalent uranium and yellow uranyl ion are the only species that are stable in solution. Source of fissionable isotope uranium-235; source of plutonium by neutron capture; electric power generation. Depleted uranium is uranium metal from which most uranium-235 has been removed (below 0.70% as found in normal uranium).	Powder is a dangerous fire risk; ignites spontaneously in air. Highly toxic radioactive material. Source of ionizing radiation.
uranium hexafluoride	Colorless, volatile crystals; sublimes; soluble in liquid bromine, chlorine, symtetrachloroethane, carbon tetrachloride, and fluorocarbons. Reacts vigorously with water, alcohol, ether, and most metals. Vapor behaves as nearly perfect gas. Used in gaseous diffusion process for separating isotopes of uranium.	Highly corrosive. Radiation risk.

Note: Information provided in *Hawley's Condensed Chemica/ Dictionary* (12th cd., 1993), revised by Richard J. Lewis, Sr., was used to prepare this table.